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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,554	12/12/2003	Jean-Luc Meunier	D/A3126	3912

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EXAMINER
BALAOING, ARIEL A

ART UNIT	PAPER NUMBER
2683	

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/735,554	MEUNIER ET AL.
	Examiner	Art Unit	
	Ariel Balaoing	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some *   c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 7-05)   Office Action Summary   Part of Paper No./Mail Date 20050909

DETAILED ACTION

Claim Objections

1.   Claim 1 is objected to because of the following informalities: The sentence of

claim 1 ends with a comma. All claims should end with a period. Appropriate correction

is required.

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

    1.   Determining the scope and contents of the prior art.
    2.   Ascertaining the differences between the prior art and the claims at issue.
    3.   Resolving the level of ordinary skill in the pertinent art.
    4.   Considering objective evidence present in the application indicating
            obviousness or nonobviousness.

4.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

5.   Claim 1, 6, 12, and 17 are rejected under 35 U.S.C. 103(a) as being

unpatentable over BAHL et al (US 6,839,560 B1) in view of LUNDGREN et al (US

2003/0008671 A1) and MCBURNEY (US 5,590,043).

Regarding claim 1, BAHL discloses a mobile device (abstract), comprising: a

memory for storing wireless signal strength calibration data comprising a list of wireless

signal strengths and known locations (abstract; column 3:lines 15-65); a location

detection module for measuring a wireless signal strength of any received network radio

signals and for determining the location of the mobile device with reference to the

wireless signal strength calibration data (abstract; column 5:line 31-column 6:line 53);

and a location correction module, for applying a statistical correction to the measured

wireless signal strength determined by the location detection module (column 5:line 31-

column 6:line 53). Although BAHL discloses taking measurements while the mobile

device is moving and at differing orientations, BAHL does not disclose a motion detector

for detecting motion of the mobile device. LUNDGREN discloses a motion detector for

detecting motion of the mobile device (abstract; paragraph 15-17). Therefore it would

have been obvious to a person of ordinary skill in the art at the time the invention was

made to modify BAHL to include a motion detector, as taught by LUNDGREN, as this

allows the ability to record an orientation of the user with respect to a signal strength

reading. However, the combination of BAHL and LUNDGREN does not disclose

wherein the statistical correction is made when the mobile device is moving less than a

threshold amount. MCBURNEY discloses wherein the statistical correction is made when the mobile device is moving less than a threshold amount (column 10:line 60-column 11-line 21). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of BAHL and LUNDGREN to provide the statistical correction when the mobile device is moving less than a threshold amount, as taught by MCBURNEY, as this can improve the location accuracy by averaging certain errors.

Regarding claim 6, BAHL discloses a method for determining a location of a mobile device (abstract), comprising: measuring a wireless signal strength of any received network radio signals (abstract; column 5:line 31-column 6:line 53); applying a statistical correction to the measured wireless signal strength (column 5:line 31-column 6:line 53); and determining the location of the mobile device with reference to wireless signal strength calibration data comprising a list of wireless signal strengths and known locations (abstract; column 5:line 31-column 6:line 53). Although BAHL discloses taking measurements while the mobile device is moving and at differing orientations, BAHL does not disclose a motion detector for detecting motion of the mobile device. LUNDGREN discloses a motion detector for detecting motion of the mobile device (abstract; paragraph 15-17). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify BAHL to include a motion detector, as taught by LUNDGREN, as this allows the ability to record an orientation of the user with respect to a signal strength reading. However, the combination of BAHL and LUNDGREN does not disclose wherein the statistical

correction is made when the mobile device is moving less than a threshold amount.

MCBURNEY discloses wherein the statistical correction is made when the mobile

device is moving less than a threshold amount (column 10:line 60-column 11-line 21).

Therefore it would have been obvious to a person of ordinary skill in the art at the time

the invention was made to modify the combination of BAHL and LUNDGREN to provide

the statistical correction when the mobile device is moving less than a threshold

amount, as taught by MCBURNEY, as this can improve the location accuracy by

averaging certain errors.

Regarding claim 12, see the rejections of the parent claim concerning the

subject matter this claim is dependent upon. BAHL further discloses a location

correction module, for applying a statistical correction to the measured wireless signal

strength determined by the location detection module (column 5:line 31-column 6:line

53). Although BAHL discloses taking measurements while the mobile device is moving

and at differing orientations, BAHL does not disclose a motion detector for detecting

motion of the mobile device. LUNDGREN discloses a motion detector for detecting

motion of the mobile device (abstract; paragraph 15-17). Therefore it would have been

obvious to a person of ordinary skill in the art at the time the invention was made to

modify BAHL to include a motion detector, as taught by LUNDGREN, as this allows the

ability to record an orientation of the user with respect to a signal strength reading.

However, the combination of BAHL and LUNDGREN does not disclose wherein the

statistical correction is made when the mobile device is moving less than a threshold

amount. MCBURNEY discloses wherein the statistical correction is made when the

mobile device is moving less than a threshold amount (column 10:line 60-column 11-line 21). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of BAHL and LUNDGREN to provide the statistical correction when the mobile device is moving less than a threshold amount, as taught by MCBURNEY, as this can improve the location accuracy by averaging certain errors.

Regarding claim 17, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHL further discloses applying a statistical correction to the measured wireless signal strength (column 5:line 31-column 6:line 53). Although BAHL discloses taking measurements while the mobile device is moving and at differing orientations, BAHL does not disclose a motion detector for detecting motion of the mobile device. LUNDGREN discloses a motion detector for detecting motion of the mobile device (abstract; paragraph 15-17). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify BAHL to include a motion detector, as taught by LUNDGREN, as this allows the ability to record an orientation of the user with respect to a signal strength reading. However, the combination of BAHL and LUNDGREN does not disclose wherein the statistical correction is made when the mobile device is moving less than a threshold amount. MCBURNEY discloses wherein the statistical correction is made when the mobile device is moving less than a threshold amount (column 10:line 60-column 11-line 21). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of BAHL and LUNDGREN to provide

the statistical correction when the mobile device is moving less than a threshold

amount, as taught by MCBURNEY, as this can improve the location accuracy by

averaging certain errors.

6.   Claims 11 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable

over BAHL et al (US 6,839,560 B1) in view of LUNDGREN et al (US 2003/0008671 A1).

        Regarding claim 11, BAHL discloses a mobile device (abstract), comprising: a

memory for storing wireless signal strength and orientation calibration data comprising a

list of wireless signal strengths, orientations and known locations (abstract; column

3:lines 15-65); and a location detection module for measuring a wireless signal strength

and responsive to orientation of the mobile device, for determining the location of the

mobile device with reference to the wireless signal strength and orientation calibration

data (abstract; column 5:line 31-column 6:line 53). Although BAHL discloses the

measuring of signal strengths at differing orientations, BAHL does not disclose an

orientation detector for determining orientation of the mobile device. LUNDGREN

discloses an orientation detector for determining orientation of the mobile device

(abstract; paragraph 15-17). Therefore it would have been obvious to a person of

ordinary skill in the art at the time invention was made to modify BAHL to include an

orientation detector, as signal strength from the same location can differ depending on

the users orientation.

        Regarding claim 16, BAHL discloses a method for determining a location of a

mobile device (abstract), comprising: measuring a wireless signal strength of any

received network radio signals at one or more orientations of the mobile device

(abstract; column 5:line 31-column 6:line 53); and determining the location of the mobile

device with reference to wireless signal strength calibration and orientation data

comprising a list of wireless signal strengths, orientations and known locations (abstract;

column 5:line 31-column 6:line 53). Although BAHL discloses the measuring of signal

strengths at differing orientations, BAHL does not disclose measuring orientation of the

mobile device. LUNDGREN discloses measuring orientation of the mobile device

(abstract; paragraph 15-17). Therefore it would have been obvious to a person of

ordinary skill in the art at the time invention was made to modify BAHL to include an

orientation detector, as signal strength from the same location can differ depending on

the users orientation.

7.   Claims 2-5, 7-10, 13-15, and 18-20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over BAHL et al (US 6,839,560 B1) in view of LUNDGREN et al (US

2003/0008671 A1) and MCBURNEY (US 5,590,043) and further in view of

RUDRAPATNA et al (US 6,052,598).

        Regarding claims 2, 7, 13, and 18, see the rejections of the parent claims

concerning the subject matter these claims are dependent upon. BAHL further

discloses wherein the statistical correction comprises calculating from a moving window

of N signal strength samples, wherein M samples of the N samples have a measured

signal strength, from a minimum of X wireless base stations, an average value and

standard deviation of the signal strength for each of the X wireless base stations

(column 5:line 31-column 6:line 53; column 7:line 44-column 8:line 45; column 9:line 29-

column 10:line 49). However, the combination of BAHL, LUNDGREN, and MCBURNEY

do not disclose wherein the measured signal strength is above a predetermined value. RUDRAPATINA discloses wherein the measured signal strength is above a predetermined value (column 2:lines 19-30; column 3:lines 35-66). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of BAHL, LUNDGREN, and MCBURNEY to include a threshold for the signal strength, as taught by RUDRAPATNA, as this allows the system to filter out measurement errors and fine tune the averaging process.

Regarding claims 3 and 14, see the rejections of the parent claim concerning the subject matter these claims are dependent upon. LUNDGREN further discloses wherein the motion detector detects direction of motion (paragraph 16). However, the combination of BAHL, LUNDGREN, and MCBURNEY does not disclose wherein the location detection module, responsive to the detected direction of motion, predicts the mobile device's next location. RUDRAPATNA discloses wherein the location detection module, responsive to the detected direction of motion, predicts the mobile device's next location (abstract; column 2:lines 9-39; column 5:lines 28-38). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to predict the mobile devices location according to direction and velocity, as taught by RUDRAPATNA, as this allows the network to allocate resources in advance of arrival of the user.

Regarding claims 4 and 15, see the rejections of the parent claim concerning the subject matter these claims are dependent upon. LUNDGREN further discloses wherein the motion detector detects velocity of the mobile device (paragraph 16).

However, the combination of BAHL, LUNDGREN, and MCBURNEY does not disclose wherein the location detection module, responsive to the detected velocity of motion, predicts the mobile device's next location. RUDRAPATNA discloses wherein the location detection module, responsive to the detected velocity of motion, predicts the mobile device's next location (abstract; column 2:lines 9-39; column 5:lines 28-38). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to predict the mobile devices location according to direction and velocity, as taught by RUDRAPATNA, as this allows the network to allocate resources in advance of arrival of the user.

Regarding claim 5, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of BAHL, LUNDGREN, and MCBURNEY does not disclose wherein the location detection module rejects locations not in the direction of motion. RUDRAPATNA discloses wherein the location detection module rejects locations not in the direction of motion (abstract; column 2:lines 9-39; column 5:lines 28-38). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify combination of BAHL, LUNDGREN, and MCBURNEY to reject locations not in the direction of motion, as taught by RUDRAPATNA, as this enables the system to filter out base stations that are more likely to be out of range of the mobile device.

Regarding claims 8 and 19, see the rejections of the parent claim concerning the subject matter these claims are dependent upon. LUNDGREN further discloses further comprising detecting direction of motion of the mobile device (paragraph 16). However,

the combination of BAHL, LUNDGREN, and MCBURNEY does not disclose wherein

responsive to the detected direction of motion, predicting the mobile device's next

location. RUDRAPATNA discloses wherein responsive to the detected direction of

motion, predicting the mobile device's next location (abstract; column 2:lines 9-39;

column 5:lines 28-38). Therefore it would have been obvious to a person of ordinary

skill in the art at the time the invention was made to predict the mobile devices location

according to direction and velocity, as taught by RUDRAPATNA, as this allows the

network to allocate resources in advance of arrival of the user.

Regarding claims 9 and 20, see the rejections of the parent claim concerning the

subject matter these claims are dependent upon. LUNDGREN further discloses further

comprising detecting velocity of the mobile device (paragraph 16). However, the

combination of BAHL, LUNDGREN, and MCBURNEY does not disclose wherein

responsive to the detected velocity of motion, predicting the mobile device's next

location. RUDRAPATNA discloses wherein responsive to the detected velocity of

motion, predicting the mobile device's next location (abstract; column 2:lines 9-39;

column 5:lines 28-38). Therefore it would have been obvious to a person of ordinary

skill in the art at the time the invention was made to predict the mobile devices location

according to direction and velocity, as taught by RUDRAPATNA, as this allows the

network to allocate resources in advance of arrival of the user.

Regarding claim 10, see the rejections of the parent claim concerning the subject

matter this claim is dependent upon. However, the combination of BAHL, LUNDGREN,

and MCBURNEY does not disclose further comprising rejecting locations not in the

direction of motion. RUDRAPATNA discloses further comprising rejecting locations not in the direction of motion (abstract; column 2:lines 9-39; column 5:lines 28-38). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify combination of BAHL, LUNDGREN, and MCBURNEY to reject locations not in the direction of motion, as taught by RUDRAPATNA, as this enables the system to filter out base stations that are more likely to be out of range of the mobile device.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

REED et al (US 6,148,211) – Estimating a subscriber's location

KHAN et al (US 5,900,838) – Portable communication device able to identify its own location

GEDIK et al (US 2005/0096841 A1) – Evaluating moving queries over moving objects

BLOEBAUM (US 6,535,815 B2) – Position updating method

TINGLEY (US 2003/0229445 A1) – Geolocation system

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ariel Balaoing whose telephone number is (571) 272-7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 AM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, William Trost can be reached on (571) 272-7872. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

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Patent Examiner

AB

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PRIMARY EXAMINER
9/13/05